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ORACLE AMERICA, INC.

UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN FRANCISCO DIVISION

ORACLE AMERICA, INC.  
  
Plaintiff,  
  
v.  
  
GOOGLE INC.  
  
Defendant.

Case No. CV 10-03561 WHA

**ORACLE AMERICA, INC.'S  
MOTION TO AMEND '205 PATENT  
INFRINGEMENT CONTENTIONS  
AND SUPPLEMENT EXPERT  
REPORTS**

Dept: Courtroom 8, 19<sup>th</sup> Floor  
Judge: Honorable William H. Alsup

## I. INTRODUCTION

Pursuant to Patent Local Rule 3-6 and the Court's March 7, 2012 Order granting leave (ECF No. 774), Oracle moves to amend its Infringement Contentions ("ICs") and supplement Professor Mitchell's patent infringement reports in light of the Court's recent construction of the phrase "at runtime" in claim 1 of the U.S. Patent No. 6,910,205 ("205 patent").

In the original ICs, Oracle disclosed its infringement theory that Android's dexopt tool infringes the asserted claims of the '205 patent. By reference to the dexopt source code and documentation, Oracle identified the particular dexopt functions that generate a new virtual machine instruction at runtime in accordance with the language of Claim 1. Prof. Mitchell discussed that infringement theory at length in his original reports.

The Court construed "at runtime" to mean "during execution of one or more virtual machine instructions." Oracle seeks to add two paragraphs to its infringement contentions to identify the specific virtual machine instructions that are executing when the previously identified dexopt functions generate new virtual machine instructions. By this amendment, Oracle is not altering its infringement theory. The Android code accused of satisfying the claim limitation is the same before and after the proposed supplementation. Because Oracle is not advancing any new infringement theory, and there is time for this supplementation, the proposed addition will not prejudice Google.

Oracle recognizes that this motion may become moot, because Oracle has proposed to withdraw with prejudice the asserted claims of the '205 patent that remain rejected at the time of trial if this case goes forward with trial this spring. (ECF No. 777 at 2.) However, if the case does not proceed with a spring trial, the Court should permit Oracle to amend its infringement contentions because there would be ample time before trial and because the jury would benefit from infringement testimony that is focused on the Court's recent construction. Thus, the Court should allow Oracle to provide additional evidence that the Android dexopt tool performs the recited functions of the asserted claims "at runtime."

## II. FACTUAL BACKGROUND

The '205 patent is directed to increasing execution speed by replacing bytecode with instructions to access faster native code. (*See* ECF No. 704 (“Supp. Claim Construction Order”) at 5.) Claim 1 of the '205 patent is as follows:

1. In a computer system, a method for increasing the execution speed of virtual machine instructions at runtime, the method comprising:

receiving a first virtual machine instruction;

generating, *at runtime*, a new virtual machine instruction that represents or references one or more native instructions that can be executed instead of said first virtual machine instruction; and

executing said new virtual machine instruction instead of said first virtual machine instruction.

'205, 13:43-52 (emphasis added).

The Court and the parties carried out the Patent Local Rules' claim construction process in early 2011. Pursuant to the rules and Court order, the parties selected six terms for construction. (ECF No. 91.) Google did not select the phrase “at runtime”—indeed, it was not one of the top ten terms “believed to be most significant to the resolution of this case” or identified as dispositive. (*Id.* at 2.) The Court held a hearing in April 2011 and issued its claim construction order on May 9, 2011. (ECF No. 137.)

On November 8, 2011, the Court ordered the parties to identify any additional terms they contended required construction. (ECF No. 603.) Google selected “at runtime” from the '205 patent as one of three terms for special construction. (ECF No. 637.) Oracle argued that “at runtime” did not require any special construction because the phrase has its ordinary meaning of “during execution of the virtual machine.” (*See* Supp. Claim Construction Order at 7.) Google argued that “at runtime” meant “during execution of the virtual machine instructions.” (*Id.*) On January 25, 2012, the Court rejected both parties' proposed constructions, holding that Oracle's proposal was too broad and Google's proposal was ambiguous. The Court instead construed “at runtime” to mean “during execution of one or more virtual machine instructions.” (*Id.* at 9.)

The Court's construction gave “at runtime” a different scope from that proposed by either party. Oracle reviewed its ICs and reports and concluded that a more specific identification was

1 required of which “one or more virtual machine instructions” are executing when Android’s  
 2 dexopt generates new virtual machine instructions in the manner already disclosed in the original  
 3 ICs. Accordingly, Oracle prepared proposed supplemental infringement contentions and a  
 4 supplemental infringement report, and provided them to Google on February 27, 2012, asking if  
 5 Google would oppose a motion to amend. (Declaration of Marc Peters in Support of Oracle  
 6 America, Inc.’s Motion to Amend Infringement Contentions and Supplement Expert Report  
 7 (“Peters Decl.”) ¶ 1.) On February 29, 2012, Google indicated that it would oppose such a  
 8 motion. (*Id.* ¶ 2.) Oracle requested leave to move to amend the ICs and supplement its  
 9 infringement reports. (ECF No. 755.) The Court granted leave on March 7, 2012. (ECF No.  
 10 774.) This motion follows.

11 For the Court’s convenience, instead of submitting both the original and proposed  
 12 amended ICs, Oracle has submitted a single document indicating the amendments Oracle  
 13 proposes to make to the April 1, 2011 ICs. (Peters Decl. Ex. A.) The proposed supplemental  
 14 infringement report from Prof. Mitchell has been submitted as well. (Peters Decl. Ex. B.)

### 15 **III. LEGAL STANDARD**

16 Patent Local Rule 3-6(a) permits a party to amend its contentions upon a “timely showing  
 17 of good cause.” A party can show good cause to amend when the Court has construed the claim  
 18 differently from the party’s proposal:

19 Amendment of the Infringement Contentions or the Invalidity Contentions may be  
 20 made only by order of the Court upon a timely showing of good cause. Non-  
 21 exhaustive examples of circumstances that may, absent undue prejudice to the  
 22 non-moving party, support a finding of good cause include:

22 (a) A claim construction by the Court different from that proposed by the party  
 seeking amendment . . . .

23 Pat. L.R. 3-6(a). The Federal Circuit has recognized that a change in claim construction justifies  
 24 amending contentions:

25 We hold that the district court did not abuse its discretion in concluding that the  
 26 change in claim construction resulting from this court’s decision on appeal  
 27 “changed the rules of the game,” *CellPro*, 152 F.3d at 1357, and that Jenoptik was  
 28 therefore properly permitted to amend its defenses.

1 *Asyst Techs., Inc. v. Emtrak, Inc.*, 544 F.3d 1310, 1317 (Fed. Cir. 2008) (affirming district court's  
2 decision to allow defendant to amend contentions after Federal Circuit changed claim  
3 construction).

#### 4 **IV. ARGUMENT**

##### 5 **A. Oracle Has Good Cause to Amend Infringement Contentions**

6 Oracle has good cause to amend its ICs and supplement Prof. Mitchell's infringement  
7 report, because the Court's claim construction of the phrase "at runtime" was different from either  
8 party's proposal and was not anticipated by them. The Court rejected Oracle's argument that "at  
9 runtime" only required the virtual machine to be up and running. (*See* Supp. Claim Construction  
10 Order at 7-9.) Similarly, the Court rejected Google's proposed construction that "at runtime"  
11 means "during execution of *the* virtual machine instructions." (*Id.* at 9.) As the Court held,  
12 Google's proposed definition was ambiguous as to which virtual machine instructions the definite  
13 article was referring:

14 The reference could not have been to the first virtual machine instructions because  
15 those instructions may never have been executed. And referring to the new virtual  
16 machine instructions would be illogical because those instructions are executed at  
a *later* step in the claimed method. This order finds that a definite article is  
unnecessary and confusing.

17 (*Id.*)

18 The Court squarely rejected any requirement that "at runtime" was limited to the  
19 execution of either the first virtual machine instructions (the instructions being optimized for  
20 increased execution speed) or the new virtual machine instructions (the optimized instructions  
21 generated in the second step of the claim). One or the other (perhaps both) seemed to be how  
22 Google was interpreting its own ambiguous proposal. (*See* ECF No. 647 at 8 ("Google's  
23 proposed construction . . . makes it clear that 'runtime' is during the execution of the virtual  
24 machine instructions that are referenced throughout the claim.")) Google's expert David August  
25 opined in his report that Android's dexopt does not infringe the asserted claims of the '205 patent  
26 because "dexopt exits *before* the Dalvik virtual machine actually executes the processed virtual  
27 machine instructions." (Peters Decl. Ex. C at 58-59.) But because the "processed" virtual  
28 machine instructions output by dexopt include the new virtual machine instructions, Prof.

1 August's opinion depends on a construction of "runtime" that the Court held was "illogical."  
2 Prof. August never addresses the question whether dexopt runs during the execution of "one or  
3 more" virtual machine instructions.

4 The Court's construction is broader than and anything but "nearly identical" to Google's  
5 proposed claim construction. In fact, despite representing that adoption of Google's proposed  
6 construction would be likely dispositive of infringement under the inline substitution theory,  
7 Google has not sought leave to move for summary judgment of non-infringement under the  
8 Court's construction. (*See* ECF No. 647 at 9 ("Adoption of Google's proposed construction is  
9 likely to be dispositive with respect to at least the dexopt theory because the dexopt program does  
10 not 'generate . . . a new virtual machine instruction' at runtime – *i.e.*, during execution of the  
11 virtual machine instructions.")) Google's inaction reinforces that the Court's construction is  
12 different from Google's proposal.

13 Good cause to amend can be shown when there is "[a] claim construction by the Court  
14 different from that proposed by the party seeking amendment . . . ." Pat. L.R. 3-6(a). But  
15 amendment is justified not only because the Court's construction was different from Oracle's  
16 proposal, but also because it was different from **both** parties' proposed constructions. The  
17 Court's construction was unexpected. This is not like a case where "[t]he risk of the construction  
18 rendered by the presiding judge was well known and anticipated" by the parties. *Sunpower Corp.*  
19 *Sys. v. Sunlink Corp.*, No. C-08-2807 SBA (EMC), 2009 U.S. Dist. LEXIS 85425, at \*3 (N.D.  
20 Cal. June 12, 2009).

21 Good cause also exists because Oracle acted with diligence in preparing the proposed  
22 amendments and providing them to Google. Oracle served the proposed amended ICs and  
23 supplemental infringement report about a month after this Court issued its Supplemental Claim  
24 Construction Order. *See, e.g., Acer, Inc. v. Tech. Props. Ltd.*, Nos. 5:08-cv-00877, -00882, -  
25 05398 JF/HRL, 2011 U.S. Dist. LEXIS 55774, at \*10-13 (N.D. Cal. May 13, 2011) (finding  
26 diligence where patentee served its proposed amended contentions for reexamined claims  
27 approximately one month after Notice of Intent to Issue Reexamination Certificate issued). And  
28 Oracle promptly sought leave to file this motion after learning Google would oppose it. Oracle

analyzed the Court's claim construction with Professor Mitchell's assistance and provided a supplemental report in a timely manner. *Schindler Elevator Corp. v. Otis Elevator Co.*, No. 06 Civ. 5377 (CM) (THK), 2010 U.S. Dist. LEXIS 110313, at \*11-12 (S.D.N.Y. Oct. 6, 2010) (allowing plaintiff's expert to disclose revised infringement theory seventy-four days after issuance of claim construction order because expert "needed some time to digest the court's rulings and revisit the file wrapper"). Accordingly, good cause exists for allowing Oracle to amend the ICs and supplement the infringement reports.

## **B. Oracle's Amendments Will Not Unduly Prejudice Google**

The proposed amendment will not unduly prejudice Google for two reasons. First, it does not change the infringement theory; it only identifies additional evidence to support the same theory. Oracle's limited amendment to its infringement contentions does not create any need for Google to change its invalidity theories. Second, Google has sufficient time to respond to the proposed amendment, particularly if the trial is held in the fall.

### **1. Amendments Do Not Change Oracle's Infringement Theory**

Because Oracle seeks only to provide additional evidence to support the same infringement theory it has asserted since December 2010, the proposed amendments will not prejudice Google. In its ICs, Oracle has consistently contended that one of the ways Android infringes the asserted claims of the '205 patent is when dexopt optimizes the classes in a Dalvik executable ("DEX") file. For example, the ICs quote Google documentation entitled "Dalvik Optimization and Verification With *dexopt*," which states that dexopt "[r]eplace[s] a handful of high-volume calls, like `String.length()`, with 'inline' replacements." (Peters Decl. Ex. A at 7.) Statements like these, as well as the implementing code, support Oracle's theory that dexopt's inline substitution functionality infringes the asserted claims.

Oracle's ICs identify how Android's dexopt performs the steps of Claim 1. (*Id.* at 2-22.) The ICs identify the `DexOptimize.c` Android source code file, which includes the `optimizeClass()` and `optimizeMethod()` functions that receive and optimize the virtual machine instructions in a given class and method. (*Id.* at 10.) The ICs show how `optimizeMethod()` in turn calls the `rewriteExecuteInlineRange()` function for certain virtual machine instructions to determine



1 whether those instructions can be rewritten. (*Id.* at 11-13.) Whenever possible, the identified  
2 rewriteExecuteInlineRange() function generates a new virtual machine instruction, with  
3 OP\_EXECUTE\_INLINE\_RANGE as the new opcode. (*Id.* at 13-14.) The instruction includes  
4 an index to the native code. (*Id.*) Thus, Oracle’s ICs explain how dexopt performs the step of  
5 “generating, at runtime, a new virtual machine instruction that represents or references one or  
6 more native instructions that can be executed instead of said first virtual machine instruction.”

7 Oracle’s ICs include evidence that dexopt runs at runtime. Dexopt’s documentation state  
8 that “[s]ome of these [the optimizations performed by dexopt] require information only available  
9 at runtime.” (*Id.* at 7.) For an Android phone, the ICs identify that dexopt may be run by the  
10 installer (the Android installer is an Android application) or in a “just-in-time” fashion on a  
11 development phone:

12 The system tries to pre-verify all classes in a DEX file to reduce class load  
13 overhead, and performs a series of optimizations to improve runtime performance.  
14 Both of these are done by the dexopt command, either in the build system or by the  
15 *installer*. On a development device, dexopt may be run *the first time a DEX file is*  
*used and whenever it or one of its dependencies is updated* (“just-in-time”  
optimization and verification).

16 (Peters Decl. Ex. A at 8, 13 (emphasis added).)

17 Oracle’s proposed amendment does not change this theory. The only substantive change  
18 is the addition of two paragraphs to the claim charts for the “generating, at runtime” element. (*Id.*  
19 at 19-20.) The other changes are two corrections of typographical errors and an update to the  
20 prefatory remarks to reflect the state of fact discovery after it closed in August 2011. Other than  
21 that, the proposed amendment does not change any of the quoted source code or the  
22 accompanying explanations.

23 The two paragraphs that Oracle seeks to add to address the Court’s construction of “at  
24 runtime” identify the specific Android installer virtual machine code that is executing when  
25 dexopt generates new virtual machine instructions. The proposed amendment identifies the  
26 Installer.java and PackageManagerService.java source code files as containing the dexopt()  
27 method and performDexOptLI() method, respectively, that cause dexopt to run when an  
28 application is being installed. (*Id.* at 19-20.) Because PackageManagerService.java and



1 Installer.java classes are written in the Java programming language, both classes are compiled to  
 2 virtual machine instructions for execution. Therefore, the entire dexopt process occurs during the  
 3 execution of the virtual machine instructions of these two classes. The proposed additions to the  
 4 ICs merely identify that these specific virtual machine instructions are executing when dexopt  
 5 performs the generating step by calling the functions in DexOptimize.c, including  
 6 optimizeClass(), optimizeMethod(), and rewriteExecuteInlineRange().

7 Prof. Mitchell's supplemental report discusses this evidence in detail. It traces how the  
 8 performDexOptLI() method of the PackageManagerService class invokes the dexopt() method of  
 9 the Installer class, which is responsible for running dexopt. (Peters Decl. Ex. B at 8-10.) It  
 10 quotes from the referenced PackageManagerService and Installer source code to clarify which  
 11 virtual machine instructions are executing during the dexopt process. (*Id.* at 8-14.) Like the ICs,  
 12 the supplemental report does not change the infringement theory—it only discusses additional  
 13 evidence to specifically address the Court's construction of "at runtime."

## 14 2. Google Has Sufficient Time to Respond to Amendments

15 Google would not be unduly prejudiced by this amendment, because there is sufficient  
 16 time for Google and its '205 patent noninfringement expert Prof. August to prepare a short  
 17 responsive report addressing Oracle's additional evidence. Google has had Oracle's proposed  
 18 supplementations since February 27, 2012. Google could provide a supplemental report by the  
 19 end of March—so Google would have more time to respond than Oracle took to prepare the  
 20 supplement—and the case would still be ready for a spring trial. If the Court decides not to try  
 21 the case in the spring, which is likely the only scenario in which the supplementations would be  
 22 relevant, then there is definitely no question of there being enough time for the parties to address  
 23 the effect of the Court's construction of "at runtime" on infringement. Thus granting leave to  
 24 amend will not unduly prejudice Google.

## 25 V. CONCLUSION

26 For the foregoing reasons, Oracle respectfully asks this Court to allow Oracle to amend its  
 27 ICs and supplement its infringement reports in light of the Court's construction of the phrase "at  
 28 runtime" in claim 1 of the '205 patent.

1 Dated: March 12, 2012

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